

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The REVIEW for May, 1896, is based on 2,726 reports from stations occupied by regular and voluntary observers, classified as follows: 149 from Weather Bureau stations; 33 from U. S. Army post surgeons; 2,404 from voluntary observers; 32 from Canadian stations; 1 from Hawaii; 96 received through the Southern Pacific Railway Company; 11 from U. S. Life-Saving stations. International simultaneous observations are received from a few stations and used together with trustworthy newspaper extracts and special reports.

The WEATHER REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the statistical tables are furnished by Mr. A. J. Henry, Chief of the Division of Records and Meteorological Data. Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada, Mr. Curtis J. Lyons, Meteorologist to the Government Survey, Honolulu, and of Dr. Mariano Bárcena, Director of the Central Meteorological Observatory of Mexico.

## CLIMATOLOGY OF THE MONTH.

### GENERAL CHARACTERISTICS.

During May the mean temperature was remarkably high in the interior of the South Atlantic States and the Gulf States. The departures were generally from  $5^{\circ}$  to  $10^{\circ}$  above the normal. From Lake Superior southward to the Gulf and South Atlantic coasts every station reported that the mean temperature was the highest on record for this month. In contrast with this, the temperature in northern California, Nevada, Oregon, and Washington was very low, and most stations in this region report the mean temperature as the lowest on record for May. Such great contrasts over such large areas assure us that all local influences are insignificant in comparison with the broad features of the general atmospheric circulation. The average distribution of pressure and winds in the lower atmosphere has changed during the present month, as though a stronger northerly wind had brought cooler air and more rain to our northwest Pacific Coast, and as though there was thus produced an unusual eastward flow above the Rocky Mountains and an unusually rapid descent from the summits of the plateau to the valley of the Mississippi. The dynamic warming of the air had less time than usual to be dissipated by radiation, and the unusual rainfall west of the summit of the Rocky Mountains increased the föhn effect on the eastern slope, so that the temperatures in the Mississippi Valley were higher than usual. On the other hand, the tropical high pressure over the Atlantic invaded the Atlantic States to a greater extent than usual, so that southeast to southwest winds were increased, thus banking up the movement from the Pacific and producing a heavier rain in the Mississippi basin, notwithstanding the higher temperatures of that region. The monthly maps of general distribution of winds and barometric pressure over the globe show that the equatorial belt called doldrums is greatly disturbed in the course of the year by the variable influence of the sun's heat over the continents. In April the doldrums are nearer the equator than in May, and, in fact, in the

latter month, and still more in the subsequent months, the so-called equatorial belt of low pressure moves into rather high northerly latitudes. During these months the low pressure area in the United States belongs to a branch of the equatorial trough that extends from the west coast of Ecuador northwestward to Alberta and beyond. The winds, the moisture, the temperature, and even the cloud forms that prevail over the interior of the United States during April and May, when this barometric condition is being developed, remind us of the conditions that prevail in the corresponding portions of the doldrums. It would, perhaps, be too much to say that the hot weather during May, 1896, was due to heat and moisture brought by southerly winds from the doldrums, and yet the distribution of the pressure was such as harmonizes with increased flow of air from the lower latitudes northward over the eastern part of the United States, and with increased flow of northerly air southward over the Pacific Coast and Rocky Mountain Plateau.

The extensive series of general storms and tornadoes, culminating on May 27 in the disaster at St. Louis, harmonize with the general statement that at this time atmospheric conditions appropriate to the equatorial regions prevailed in the interior States. In connection with this and the other tornadoes of that date, Storm Bulletin No. 4 was published on May 28. A detailed account of the St. Louis tornado, by Mr. H. C. Frankenfield, Local Forecast Official, will be found at pp. 77-81 of the MONTHLY WEATHER REVIEW for March.

### ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure reduced to sea level, as shown by mercurial barometers, not reduced to standard gravity, and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart IV. That portion of the reduction